

Dimension $n = 5$ is Critical for the Bifurcation Phenomena

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We use the bifurcation theory to investigate a number of positive solutions of the semilinear Dirichlet boundary value problem on a n -dimensional ball for the second order elliptic equation with periodic nonlinearity containing a positive parameter. We show that, if the dimension n of the variables is less than or equal five, the problem has infinitely many positive solutions.